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ATGCTGCGTCGGCGGGGCAGCCCTGGCATGGGTGTGCATGTGGGTGCAGCCC
TGGGAGCACTGTGGTTCTGCCTCACAGGAGCCCTGGAGGTCCAGGTCCCTGA
AGACCCAGTGGTGGCACTGGTGGGCACCGATGCCACCCTGTGCTGCTCCTTCT
CCCCTGAGCCTGGCTTCAGCCTGGCACAGCTCAACCTCATCTGGCAGCTGAC
AGATACCAAACAGCTGGTGCACAGCTTTGCTGAGGGCCAGGACCAGGGCAG
CGCCTATGCCAACC GCACGGCCCTCTTCCCGGACCTGCTGGCACAGGGCAAC
GCATCCCTGAGGCTGCAGCGCGTGCCTGTGGCGGACGAGGGCAGCTTCACCT
GCTTCGTGAGCATCCGGGATTTTCGGCAGCGCTGCCGTGACCTGCAGGTGGC
CGCTCCCTACTCGAAGCCCAGCATGACCCTGGAGCCCAACAAGGACCTGCGG
CCAGGGGACACGGTGACCATCACGTGCTCCAGCTACCGGGGCTACCCTGAGG
CTGAGGTGTTCTGGCAGGATGGGCAGGGTGTGCCCTGACTGGCAACGTGAC
CACGTCGCAGATGGCCAACGAGCAGGGCTTGTTTGATGTGCACAGCGTCCTG
CGGGTGGTGTGCTGGGTGCGAATGGCACCTACAGCTGCCTGGTGCGCAACCCCG
TGCTGCAGCAGGATGCGCACGGCTCTGTCACCATCACAGGGCAGCCTATGAC
ATTCCCCCAGAGGCCCTGTGGGTGACCGTGGGGCTGTCTGTCTGTCTCATTG
CACTGCTGGTGGCCCTGGCTTTTCGTGTGCTGGAGAAAGATCAAACAGAGCTG
TGAGGAGGAGAATGCAGGAGCTGAGGACCAGGATGGGGAGGGAGAAGGCTC
CAAGACAGCCCTGCAGCCTCTGAAACACTCTGACAGCAAAGAAGATGATGG
ACAAGAAATAGCCTGA

FIG. 1

ATGCTGCGTCGGCGGGGCAGCCCTGGCATGGGTGTGCATGTGGGTGCAGCCC
TGGGAGCACTGTGGTTCTGCCTCACAGGAGCCCTGGAGGTCCAGGTCCCTGA
AGACCCAGTGGTGGCACTGGTGGGCACCGATGCCACCCTGTGCTGCTCCTTCT
CCCCTGAGCCTGGCTTCAGCCTGGCACAGCTCAACCTCATCTGGCAGCTGAC
AGATACCAAACAGCTGGTGCACAGCTTTGCTGAGGGCCAGGACCAGGGCAG
CGCCTATGCCAACC GCACGGCCCTCTTCCCGGACCTGCTGGCACAGGGCAAC
GCATCCCTGAGGCTGCAGCGCGTGCCTGTGGCGGACGAGGGCAGCTTCACCT
GCTTCGTGAGCATCCGGGATTTTCGGCAGCGCTGCCGTGACCTGCAGGTGGC
CGCTCCCTACTCGAAGCCCAGCATGACCCTGGAGCCCAACAAGGACCTGCGG
CCAGGGGACACGGTGACCATCACGTGCCCCAGCTACCGGGGCTACCCTGAGG
CTGAGGTGTTCTGGCAGGATGGGCAGGGTGTGCCCTGACTGGCAACGTGAC
CACGTCGCAGATGGCCAACGAGCAGGGCTTGTTTGATGTGCACAGCGTCCTG
CGGGTGGTGTGCTGGGTGCGAATGGCACCTACAGCTGCCTGGTGCGCAACCCCG
TGCTGCAGCAGGATGCGCACGGCTCTGTCACCATCACAGGGCAGCCTATGAC
ATTCCCCCAGAGGCCCTGTGGGTGACCGTGGGGCTGTCTGTCTGTCTCATTG
CACTGCTGGTGGCCCTGGCTTTTCGTGTGCTGGAGAAAGATCAAACAGAGCTG
TGAGGAGGAGAATGCAGGAGCTGAGGACCAGGATGGGGAGGGAGAAGGCTC
CAAGACAGCCCTGCAGCCTCTGAAACACTCTGACAGCAAAGAAGATGATGG
ACAAGAAATAGCCTGA

FIG. 2



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MLRRRGSPGMGVHVGAALGALWFCLTGALEVQVPEDPVVALVGTDATLCCSFS
 PEPGFSLAQLNLIWQLTDTKQLVHSFAEGQDQGSAYANRTALFPDLLAQGNASL
 RLQRRVRVADEGSFTCFVSIRDGFGSAAVSLQVAAPYSKPSMTLEPNKDLRPGDVT
 ITCSSYRGYPEAEVFWQDGGQVPLTGNVTTSQMANEQGLFDVHSLRVVLGAN
 GTYSCLVRNPVLQQDAHGSVTITGQPMTFPPEALWVTVGLSVCLIALLVALAFV
 CWRKIKQSCEENAGAEDQDGELEGSKTALQPLKHSDSKEDDGQEIA

FIG. 3

MLRRRGSPGMGVHVGAALGALWFCLTGALEVQVPEDPVVALVGTDATLCCSFS
 PEPGFSLAQLNLIWQLTDTKQLVHSFAEGQDQGSAYANRTALFPDLLAQGNASL
 RLQRRVRVADEGSFTCFVSIRDGFGSAAVSLQVAAPYSKPSMTLEPNKDLRPGDVT
 ITCPSYRGYPEAEVFWQDGGQVPLTGNVTTSQMANEQGLFDVHSLRVVLGAN
 GTYSCLVRNPVLQQDAHGSVTITGQPMTFPPEALWVTVGLSVCLIALLVALAFV
 CWRKIKQSCEENAGAEDQDGELEGSKTALQPLKHSDSKEDDGQEIA

FIG. 4

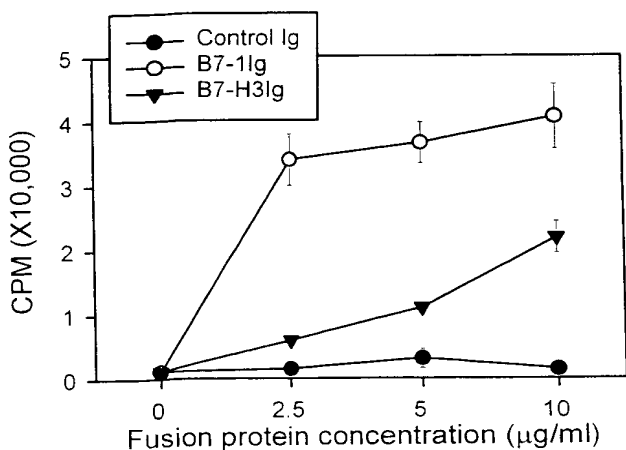


FIG. 8A

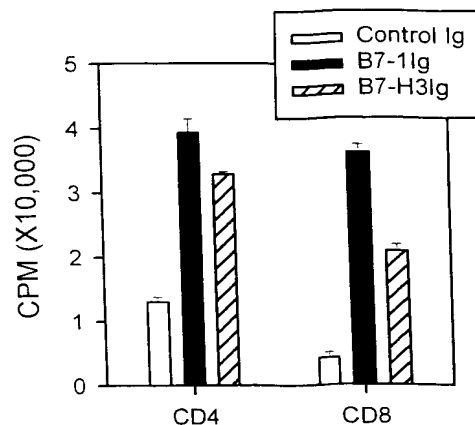


FIG. 8B

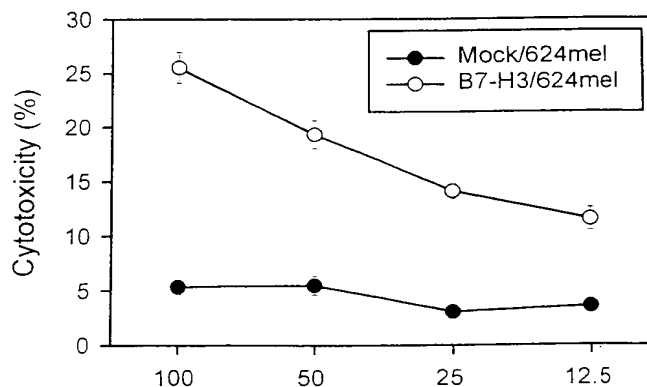


FIG. 8C E:T

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h87-H3 1 MLRRRGSPG MG HV GAA --- LG AL W FC IT GA LE VQ VP ED --- PM AL VG TD AT LC SE SP EP GS LA Q LN IT WQ 68
h87-H2 1 MR LG S --- PG LL FL FS SU RA D TQ EK --- EM RA VG SD VE LC AC PE GS RF DL ND VY WQ 55
h87-H1 1 MR IF AV FI --- FM TY HL LN AF TV TP KD --- LY VE YGS N TE CK FP VE KQ DL LA AL I WY WE 58
h87-2 1 ML SN --- IL EM AF LL SG AP LK --- IQ AY ME TA DL PC FA NS Q SL SE LV FW WQ 52
h87-1 1 MG HT IR GG IT SP SK CP YL NF FO LL VL AG LS HC SG VI MT KE VE AT LC GH NV S VE EA Q TR IY WQ 67
h87-H3 69 L TD --- TK Q L VH S FAE --- G OD Q S AM NR TA LP DL AC GA SL RL QR VR VA DE GS IT CE MS --- IP DF GS AA VS --- 135
h87-H2 56 T SE SK TM VT YH IP ON SS LE N SR VR AL MS PA GM RG DF SL RL FN TP DE CK F CL VL --- SQ SL G FQ EV LS 127
h87-H1 59 M ED KN II Q VH GE ED --- LK VQ H SS VR OR AR LL KD LS GA AL Q IT DK VL QD AG WY RC MI S --- Y G G A D Y KR IT --- 127
h87-2 53 D O EN VL N E W LG KE K F D S V IS K MG RT S F --- S D SM TL RL HL NI Q IK D GL Y Q CI I H K K P T G M JR I HQ 119
h87-1 68 K E Y --- K M VL T M SG D --- M N I W PE K N R T I FD --- I T N L S I M I L AL RP S DE GT EC V L K Y E K D A F K R E HL 131
h87-H3 136 L Q V A A P Y S K P S M T L E P N K D L R P G D --- T V T I T C S S R G Y P E A E --- V F M OD G G O G V P L T G N V T T S O M A N E --- Q Q L 201
h87-H2 128 V E V T L H A N I F S V M S A P H S Q D E L T F C T S I N G Y P R N --- V M Y M K I D N S L D Q A L Q N D T V L N M R Q L 196
h87-H1 128 K M N A P Y N --- K I N Q R I L V D P T S E H E L T Q A E G Y P K A E --- M I M T S S D H Q V L S G K T T I N S K R E --- E K L 190
h87-2 120 M N S E L S M A N I F S O P E I M P I S N I T E N V I N L T C S S I H G Y P E R K M S M L R T K N S T I E Y D G I M O K S O D N V --- T E L 190
h87-1 132 A E V T L S N K A D F P T S I S D F E I P T S N I R R I T C S S G G F P E P H --- S M L E N G E E D N A I T T I V S O D P E --- T E L 197
h87-H3 202 F D V I S M L R V L --- G A N G T Y S C L V R N P V L Q Q --- D A H G S - V T I T G O P M I F P P E A L W V T G L S V G L I A 261
h87-H2 197 Y D V I S M L R I A R --- T P S V N I G C C I E N V L Q Q N L T V G S Q T G N I E N P V S T G E K N - A A T M S I L A V L C L 265
h87-H1 191 F N V T S I L R I N T --- T T N E I F Y C T F R L D P E E --- N I T A E - L V I P E L P A P P N E R T H L V I G A I L C 250
h87-2 191 Y D V S I S L S M S F P D V T S M T I F C I L E T D K T R L --- S S P F S - I E L E D P P P D H I P W I T A V L P T V I I C 253
h87-1 198 Y A V S S K L D F N M --- T T N - S F M C L I K Y G H L R V --- N O T F N --- N I T K Q E H F P O N L L P S K A L I J S N 255
h87-H3 262 L L V A L A F V C - W R X I K O S O E E E N A G A E D O D G E G S K T A L Q P L H S D S K E D D G Q E I A 316
h87-H2 266 L V W A V A I G - W C R D R Q L H S Y A G A A V S P E T - E L T G H V 302
h87-H1 251 L G V A L I F - R L R K G M D V K K G I Q D T N S K - - - Q S D H L E E T 290
h87-2 254 V M F C L I L M K K K R P R N S Y K C G T N T M E R E S - E Q T K R E K I H I P E R S D E A Q R V F K S S K T S S C O K S D T C F 323
h87-1 256 G L I F V E C U L T - Y C F A P R O R R - - R N E P L R R E S - - - V R P V 288

FIG. 5A



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signal peptide
 MLRRRGSPGMGVHVGAAALGALWFCLTGALEVQVPEDPVVALVGTDATLCCSFSPGPGFSLAQLNLIWQLTDTKQLVHSFAEGQDQGSAY
IgV-like domain
 ANRTALFPDLLAQGNASLRLQRVRVADEGSFTCFVSIRDFGSAAVSLQVAAPYSKPSMTLEPNKDLRPGDVTITCSSYRGYPEAEVFW
IgC-like domain
 QDGGVPLTGNVTTSQMANEQGLFDVHSVLRVVLGANGTYSCLVRNPVLQQDAHGSVTITGQPMTFPPEALWTVGLSVCLIALLVALA
IC
 FVCWRKIKQSCSEENAGAEDQDGEGETALQPLKHSKSKEDDGGQEI

FIG. 5B



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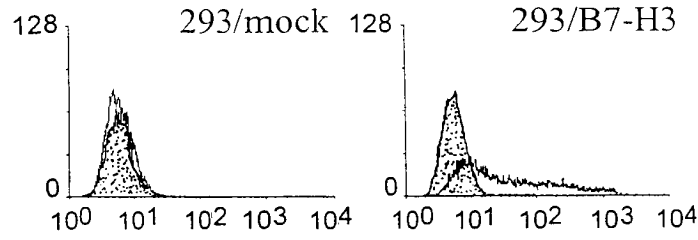


FIG. 6A

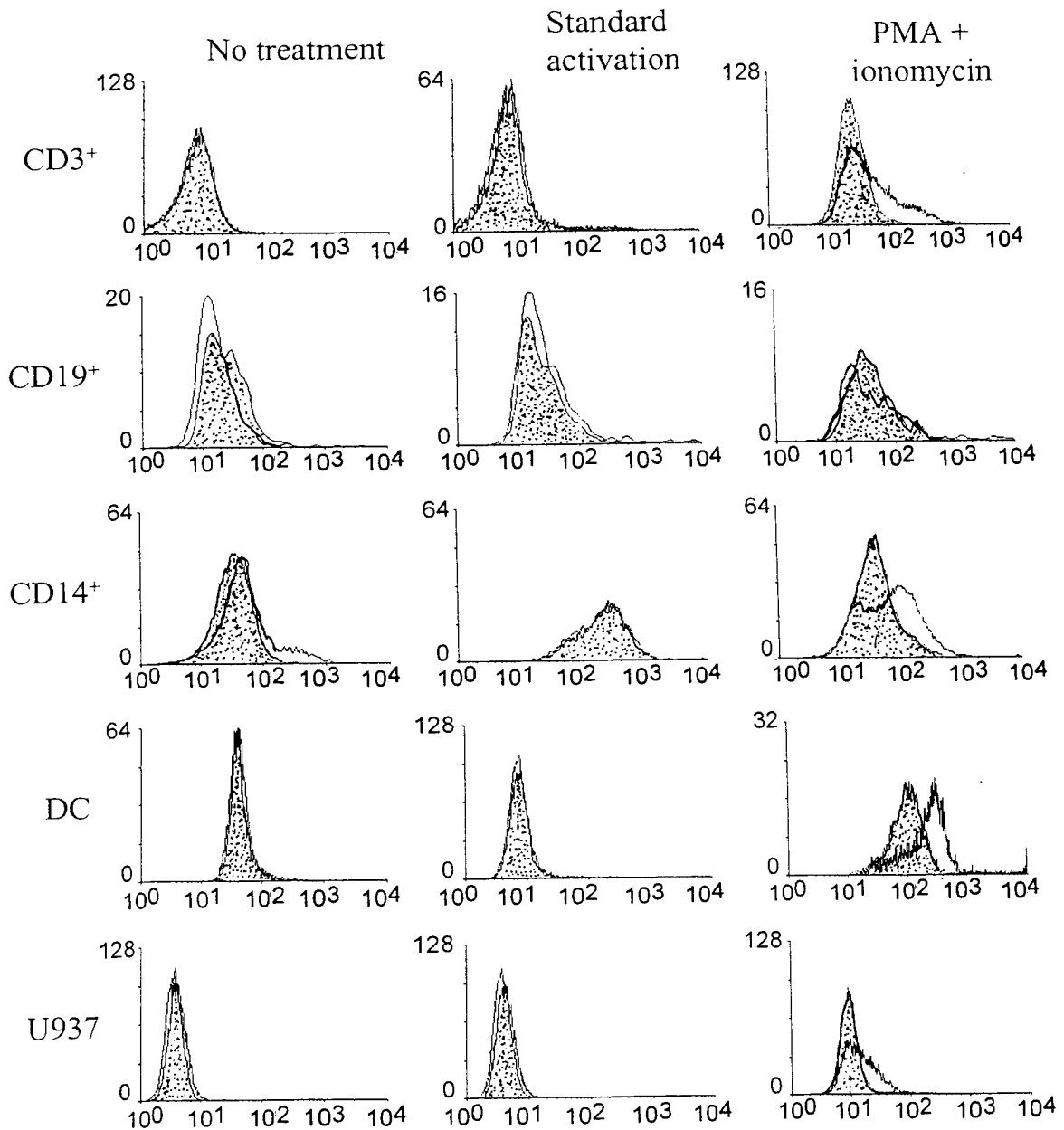


FIG. 6B

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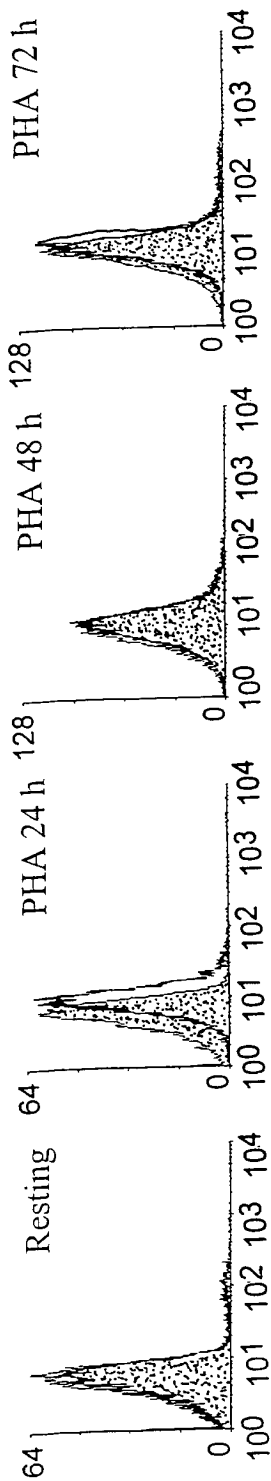


FIG. 7A

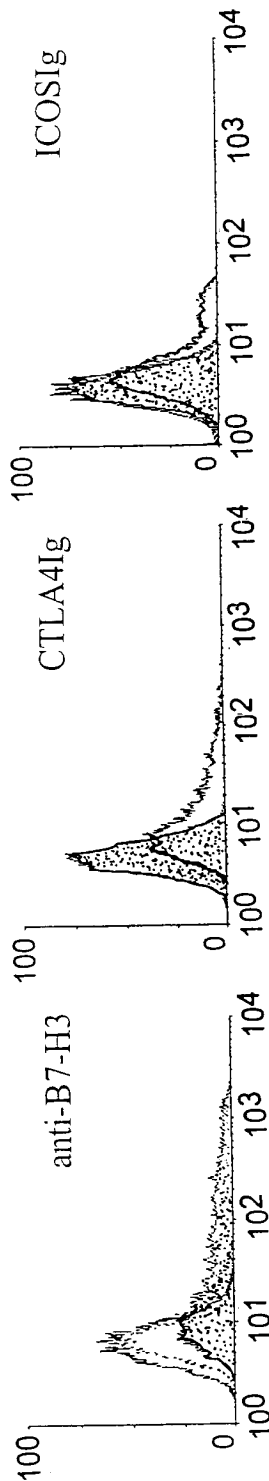


FIG. 7B



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ATGGCTTCCCTGGGGCAGATCCTCTTCTGGAGCATAATTAGCATCATCATTAT
TCTGGCTGGAGCAATTGCACTCATCATTGGCTTTGGTATTTTCAGGGAGACACT
CCATCACAGTCACTACTGTCGCCTCAGCTGGGAACATTGGGGAGGATGGAAT
CCTGAGCTGCACTTTTGAACCTGACATCAAACCTTTCTGATATCGTGATACAAT
GGCTGAAGGAAGGTGTTTTAGGCTTGGTCCATGAGTTCAAAGAAGGCAAAGA
TGAGCTGTCGGAGCAGGATGAAATGTTTCAGAGGCCGGACAGCAGTGTGCT
GATCAAGTGATAGTTGGCAATGCCTCTTTGCGGCTGAAAAACGTGCAACTCA
CAGATGCTGGCACCTACAAATGTTATATCATCACTTCTAAAGGCAAGGGGAA
TGCTAACCTTGAGTATAAACTGGAGCCTTCAGCATGCCGGAAGTGAATGTG
GACTATAATGCCAGCTCAGAGACCTTGCGGTGTGAGGCTCCCCGATGGTTCC
CCCAGCCCACAGTGGTCTGGGCATCCCAAGTTGACCAGGGAGCCAACCTTCTC
GGAAGTCTCCAATACCAGCTTTGAGCTGAACTCTGAGAATGTGACCATGAAG
GTTGTGTCTGTGCTCTACAATGTTACGATCAACAACACATACTCCTGTATGAT
TGAAAATGACATTGCCAAAGCAACAGGGGATATCAAAGTGACAGAATCGGA
GATCAAAGGCGGAGTCACCTACAGCTGCTAAACTCAAAGGCTTCTCTGTGT
GTCTCTTCTTTCTTTGCCATCAGCTGGGCACTTCTGCCTCTCAGCCCTTACCT
GATGCTAAAATAA

FIG. 9

MASLGQILFWSIIIIILAGAIALIIGFGISGRHSITVTTVASAGNIGEDGILSCTFEPD
IKLSDIVIQWLKEGVLGLVHEFKEGKDELSEQDEMFRGRTAVFADQVIVGNASLR
LKNVQLTDAGTYKCYIITSKGKGNANLEYKTGAFSMPEVNVDYNASSETLRCEA
PRWFPQPTVVWASQVDQGANFSEVSNTSFELNSENVTMKVVSVLNVNTINTYS
CMIENDIAKATGDIKVTSEIKRRSHLQLLNSKASLCVSSFFAISWALLPLSPYLM
LK

FIG. 10

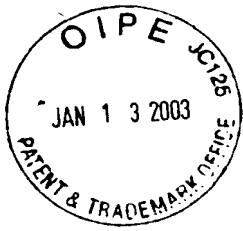


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B7-H4 ISGRHSITVTTVASAGNIGEDGILSCITF--EPDIKISQIVTQMKEG--VLGLVHEFEKEGKD
B7-H2 LRAOTQEKEVRANVGSDELSCACPEGRFDLNDVWVWQTSSEKTIWYTHIPQNSSL
B7-H3.2 QVPEDPVVALVGTDATLCCSFSPGFSLAQLN[]WQLTD--TKQLVHSFAEGQD
B7-H1 VTVPKDLVYVEYGSNMTECKFPVEKQLDLAALIVYWEEMEDKNITQFVHGEEDLKV
B7-2 QAYFNETADLPCOFANSQNSLSLWFWQDQENLVLEWYLGKEKFD
B7-1 LNFFQLLVLAGLSHFCSGVIHVTKEVATLSGHN--VSVEELATRIYWQKEK--KMVLTMMSQNMNI
*
B7-H4 ELSEQDEMFRGRTAVFADQMI VGNASRLKINVLTDAGTYKCYITTSKKG--GNANLEYKTGAFS-----M
B7-H2 EN--VDSRYRNAL MSPAGMLRGDFSLRLFNMTPODEQKFHCLVLSQLG-FQEMLSIEVTLHVAANFSV
B7-H3.2 -----QGSAYANRTALFPDLIAQGNASRLQRVRVADDEGFTCEVMSIRDFG-SAAVSLQVAAPYSKPSMTL
B7-H1 -----QHSSYPCORARLLKDQLSLGNAALQITDKLQDAGVRCMISYGGAD-YKRIITVKVNPYN---KIN
B7-2 S----VHSKYMGRITSFDS-----SWTLRLHNLQJKKGLYOCITHKKPTGMIRI HQMNSSEL SVLANFSQ
B7-1 -----WPEYKNRITIF--D--ITNLSIMIALRPSDEGTECVLKYEKDAFKREHLAEVTL SVKADFPT
*
B7-H4 PEMN--VDYNAS-SEITLRCAPRMFPQP-TMVASQVDQGANFSEVNSTFELNSENMTMKVWSMLY---
B7-H2 PMVSAPHSPSQD-ELTETCTISINGYPRP-NMYWINKTDSLDOALONDITVFLNMRGLYDMVSMRLRI---
B7-H3.2 EPNKD-LRPGD--TVITITCPSYRGYPEA-EMFMD--GGGVPLTGNVITTSQMANEQGLFDMHSMLRM---
B7-H1 QRILV-VDPPTS-EHELTCQA-EGYPKA-EMVMTS--SDHQVLSGKTITTSKREEKLFNVTSTLRI---
B7-2 PEIIVPISNITENVYINLTCSIIHGYPEPKMSVLLRTKNSTIEYDGMOKSQDNVTEL YDMVSI SLVSFP
B7-1 PSISDFEIPITSN-IRRIITCSISGGPEP-HLSME--NGEELNAINITVSQDPETELYAVSSKLDL---
*
B7-H4 NVTINNTYSCTIENDIAKATGDI-----KVTESEIKRRSHLQLLSK
B7-H2 ARTPSVNI GCTIENVLLQNLTVGSQTGNDIGERDKITENPNVSTGEKNAAT
B7-H3.2 VILGANGTYSCLVRNPVLDDAHG-----SVTITGQP-MTFPP
B7-H1 NITITNEIYCTFRRLDPEENHTA-----ELVTELP-LAHPPNERTH
B7-2 DVTSNMTIIFCILEITDKTRLSSP-----FSIELEDL--QPPPDHIP
B7-1 NMTTNHSFMC LJKYGLRMDTF-----NWNITKQE---HFDPDN

FIG. 11



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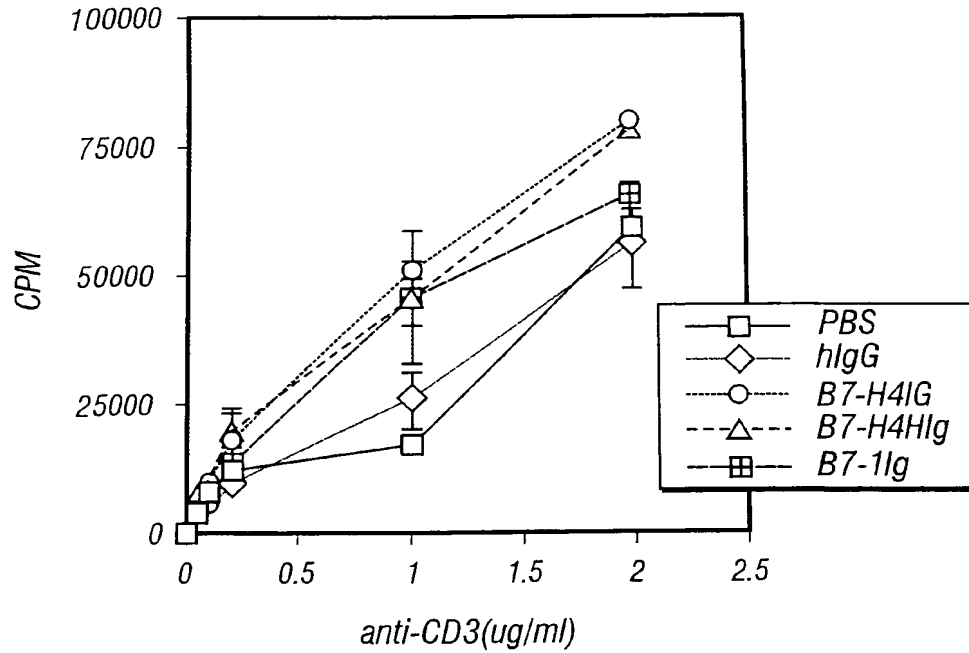


FIG. 12

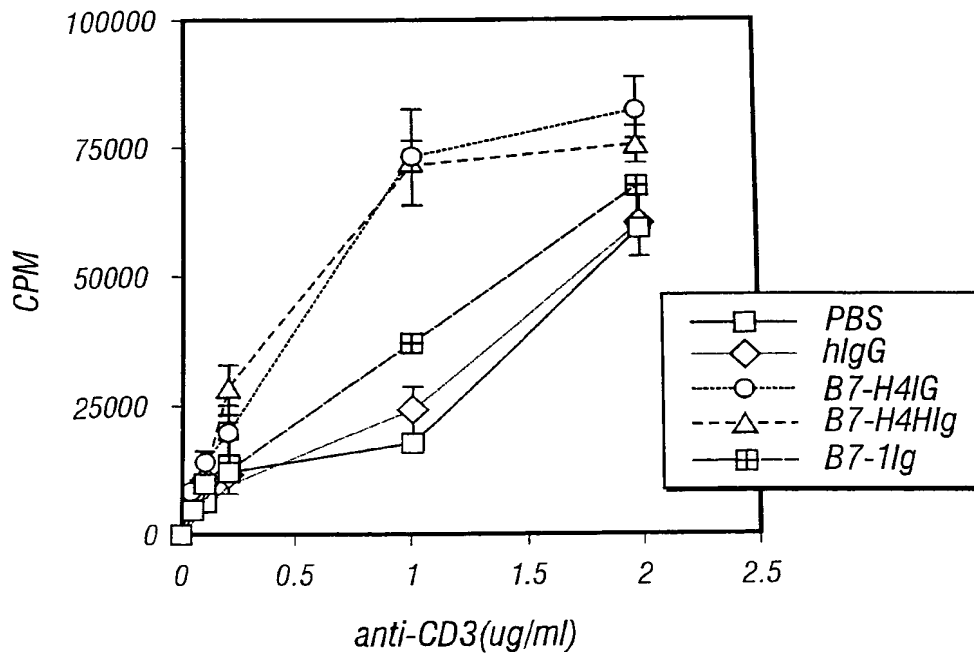


FIG. 13



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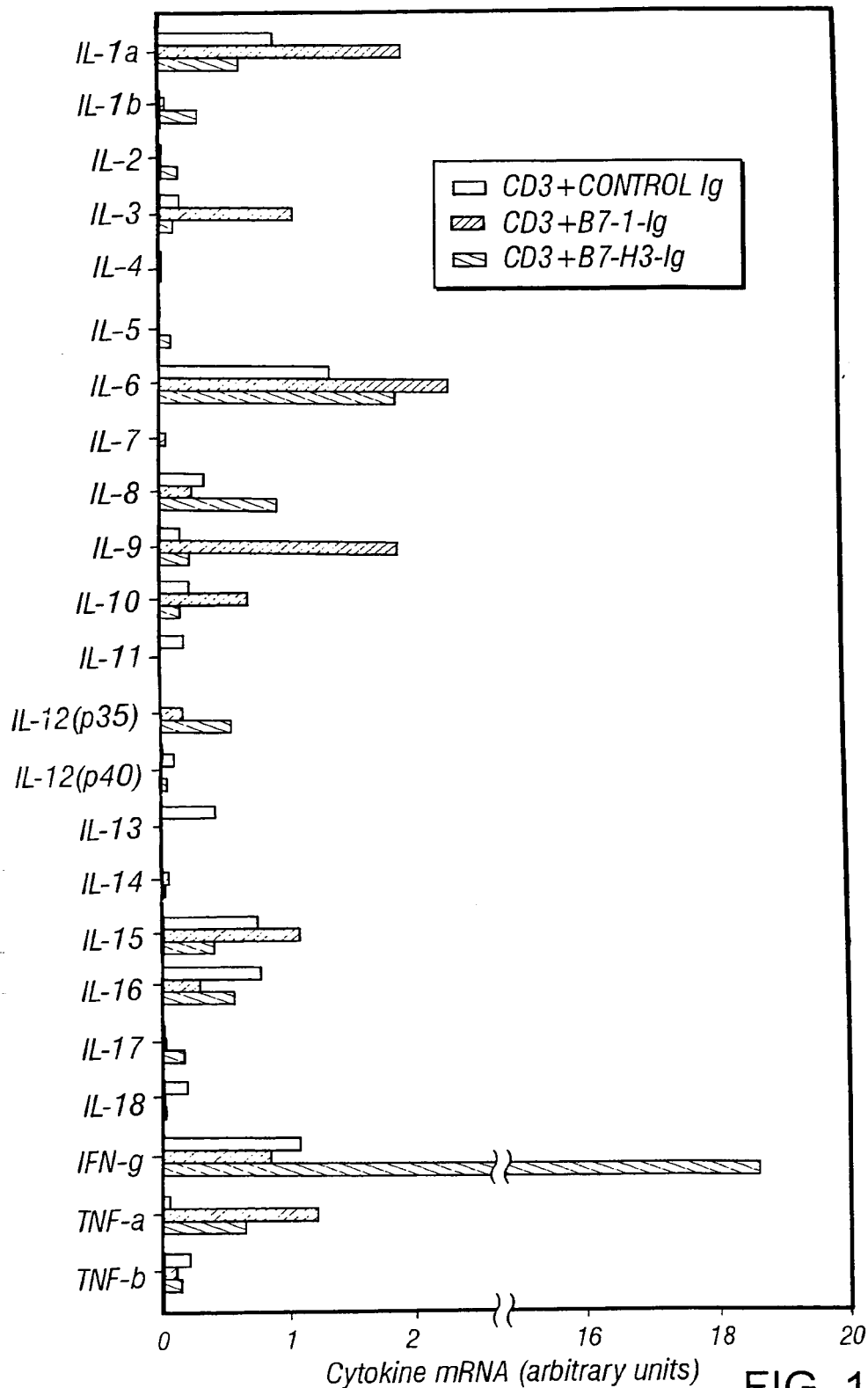


FIG. 14